well as the great opportunity for erroneous conclusions. The geologist, finding the statements exact, can not complain because the presentation is such as to be attractive to the layman. Subsequent mountains, being merely relics of former highland, receive briefer treatment, and the discussion is confined chiefly to consideration of the various destructive agencies and their action upon the rocks and types of structure.

As one should expect in a work intended mostly for "home consumption," full share of the space is given to such Scottish and English areas as afford proper illustrations; but in this, as in earlier works by Professor Geikie, there is ample evidence of intimate acquaintance with conditions elsewhere, and he has levied contributions upon all parts of the world. The plates, reproductions of photographs from many lands, are of unusual excellence and the text is full of suggestive matter for the geologist in every land.

Some portions of the work are deliciously controversial; the consideration of phenomena in the Pacific basin is thorough and the argument against explanations offered by Suess is put very strongly; some American geologists will regard the opinions respecting isostacy as not altogether orthodox, and several continental geologists will feel convinced that the author does not know so much about Alpine structure as they do. But all, whether accepting or opposing his conclusions, will agree that the tone of his presentation is judicial throughout, as benefits one who has made direct study in a great part of Europe and whose familiarity with the literature is equalled by that of few other geologists.

JOHN J. STEVENSON

The Indigenous Trees of the Hawaiian Islands. By JOSEPH F. ROCK, botanist of the College of Hawaii; consulting botanist, Board of Commissioners of Agriculture and Forestry, Territory of Hawaii. Issued June 26, 1913. With two hundred and fifteen photo-engravings. Published under patronage. Honolulu, T. H. 1913. Large octavo. Pp. viii + 518.

This stately volume includes descriptions of two hundred and twenty-five species of trees which are natives of the Hawaiian Islands. The author tells us in his preface that it had "long been the writer's desire to give to the public a volume on the native trees of Hawaii," so that this work is the result of a protracted study of the interesting vegetation of these isolated islands, and as a consequence is much more authoritative and complete.

The introduction, of 87 pages, gives "a more or less detailed description of all the floral regions, and their plant associations found in this island group, not being restricted to trees alone, but embracing the whole plant covering." In it we are first given a tabular enumeration of the botanical regions, as follows:

1. Strand vegetation.
2. Lowland region (merging into 3).
   (*a*) Dry region.
   (*b*) Wet region.
3. Lower forest region.
   (*a*) Windward side.
   (*b*) Leeward side.
4. Middle forest region.
   (*a*) Dry region.
   (*b*) Semi-dry region.
   (*c*) Wet region.
   (*d*) *Kipukas* (small areas of black, fertile soil in dry regions with no trace of lava, richest in species).
5. Bog region.
6. Upper forest region.

These are described at some length, and are illustrated by many good photo-engravings. On the largest of the islands (Hawaii) the mountains reach elevations of 8,273 feet, 13,675 feet and 13,823 feet, so that there are wide climatic ranges from tropical heat to "almost perpetual snow." Indeed the author sums up his statement in the sentence, "from a phytogeographic standpoint the island of Hawaii offers the most interesting field in the Pacific."

Coming now to the systematic part of the book one finds that no less than forty-five families of plants are represented by species of trees. And yet with all the variety that this implies there is scarcely a familiar genus in

the whole book. There are two tree ferns, of the genus *Cibotium*, one (*C. menziesii*) reaches a total height of 26 feet and its stem often has a diameter of three feet. Monocotyledons are represented by a *Pandanus*, eleven palms (*Pritchardi* and *Cocos*) and a *Dracaena*. In the Dicotyledons one finds many unfamiliar genera in familiar families: as *Trema* (Ulmaceae), *Urera* and *Pipturus* (Urticaceae), *Nototrichium* and *Charpentiera* (Amaranthaceae), *Broussaisia* (Saxifragaceae), *Colubrina* (Rhamnaceae), *Jambosa*, *Syzygium*, and *Metrosideros* (Myrtaceae), *Pteralyxia*, *Ochrosia* and *Rauwolfia* (Apocynaceae), *Clermontia* and *Cyanea* (Campanulaceae), *Dubautia*, *Raillardia*, and *Hesperomannia* (Compositæ). On the other hand one finds, also, *Artocarpus* (Moraceae) the well-known "Breadfruit tree"; *Pittosporum* (Pittosporaceae), of which there are twelve species, several of which are more than twenty feet high; *Acacia* and *Sophora* (Leguminosae); *Xanthoxylum* (Rutaceae); *Euphorbia* (Euphorbiaceae), two species of trees from 15 to 25 feet in height; *Rhus* (Anacardiaceae); *Ilex* (Aquifoliaceae), one tree of 20 to 40 feet in height; *Hibiscus* (Malvaceae), including trees 20 to 30 feet in height; *Sideroxylon* (Sapotaceae), some 50 to 60 feet high; *Osmanthus* (Oleaceae), sixty feet high; *Solanum* (Solanaceae) a small tree, 15 to 20 feet high. Many of the trees bear foliage of such a structure as to hide completely their botanical relationship.

Among the notable trees is the koa (*Acacia koa*), "one of our most stately trees." "It is perhaps the most valuable tree which the islands possess, as it is adapted for construction as well as for cabinet work. The koa reaches a height of more than 80 feet in certain localities, with a large trunk vested in a rough, scaly bark of nearly an inch in thickness." Another tree (*Pisonia umbellifera*) possesses so soft a stem that "trunks of a foot in diameter can be felled with one stroke of the axe."

The largest family, so far as the tree species are concerned, is Rutaceae (32 sp.), followed closely by Rubiaceae (31 sp.), and then Campanulaceae (15), Araliaceae (14), Pittosporaceae (12), Palmaceae (11), Myrsinaceae (11), and Malvaceae (10).

At the end of the volume there is a good index to the scientific names, followed by one of the Hawaiian and few English names.

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Science from an Easy Chair. Second series. By Sir Ray Lankester. New York, Henry Holt and Company. 1913. Pp. 412.

In his chapter on Museums, Sir Ray Lankester deplores the fact that so many are "mere enlargements of the ancient collector's 'cabinet of rare and curious things,' brought together and arranged without rhyme or reason." His book, dealing in one small volume with such diverse matters as Kisses, Ferns, Glaciers, Elephants and Tadpoles, might possibly be described in similar terms; yet it is by no means without merit. It is a significant and interesting fact that a zoologist of the first rank, retiring from the directorship of the British Natural History Museum, should think it worth his while to contribute weekly articles on scientific subjects to a daily paper, regularly for a period of five years. It is no less significant that this paper (the *Daily Telegraph*) should be willing to print them as they stand, popular in form, but dealing in many cases with technical matters which require close attention in order to be understood. The book before us consists of a selection from this newspaper series, with some revision and expansion, and a number of illustrations. It possesses the original journalistic tone, and consists essentially of well-written dissertations on matters familiar to specialists, but, for the most part, new to the general public. I have read the greater part of it with pleasure and interest, and, while different chapters will appeal to different people, few can fail to find something of value. Some of the essays, as those on Food and Cookery and Misconceptions about Science, reflect so strongly the author's prepossessions that they naturally arouse a combative spirit in those of a different temper. Here and there, expressions have crept in which the author would scarcely de-